Medical Policy

Radioembolization for Primary and Metastatic Tumors of the Liver

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Policy Number: 292
BCBSA Reference Number: 8.01.43

Related Policies
- Radiofrequency Ablation of Miscellaneous Solid Tumors Excluding Liver Tumors, #259
- Cryosurgical Ablation of Primary or Metastatic Liver Tumors, #633
- Transcatheter Arterial Chemoembolization (TACE) to Treat Primary or Metastatic Liver Malignancies, #634
- Radiofrequency Ablation of Primary or Metastatic Liver Tumors, #286

Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Radioembolization may be MEDICALLY NECESSARY for the following conditions:
- To treat primary hepatocellular carcinoma that is unresectable and limited to the liver,
- In primary hepatocellular carcinoma as a bridge to liver transplantation,
- To treat hepatic metastases from neuroendocrine tumors (carcinoid and noncarcinoid) with diffuse and symptomatic disease when systemic therapy has failed to control symptoms, or
- To treat unresectable hepatic metastases from colorectal carcinoma that are both progressive and diffuse, in patients with liver-dominant disease who are refractory to chemotherapy or are not candidates for chemotherapy.

Radioembolization for all other hepatic metastases except for metastatic neuroendocrine tumors and metastases from colorectal cancer as noted above is INVESTIGATIONAL.

Radioembolization is INVESTIGATIONAL to treat primary intrahepatic cholangiocarcinoma.

Radioembolization is INVESTIGATIONAL for all other indications not described above.

Prior Authorization Information
Pre-service approval is required for all inpatient services for all products.
See below for situations where prior authorization may be required or may not be required for outpatient services.
Yes indicates that prior authorization is required.
No indicates that prior authorization is not required.

<table>
<thead>
<tr>
<th>Outpatient</th>
<th>Commercial Managed Care (HMO and POS)</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Commercial PPO and Indemnity</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Medicare HMO Blue</td>
<td>No</td>
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<tr>
<td></td>
<td>Medicare PPO Blue</td>
<td>No</td>
</tr>
</tbody>
</table>

### CPT Codes / HCPCS Codes / ICD-9 Codes

The following codes are included below for informational purposes. Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member. A draft of future ICD-10 Coding related to this document, as it might look today, is included below for your reference.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

#### CPT Codes

<table>
<thead>
<tr>
<th>CPT codes:</th>
<th>Code Description</th>
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</thead>
<tbody>
<tr>
<td>37243</td>
<td>Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; for tumors, organ ischemia, or infarction</td>
</tr>
<tr>
<td>75894</td>
<td>Transcatheter therapy, embolization, any method, radiological supervision and interpretation</td>
</tr>
<tr>
<td>77778</td>
<td>Interstitial radiation source application; complex</td>
</tr>
<tr>
<td>79445</td>
<td>Radiopharmaceutical therapy, by intra-arterial particulate administration</td>
</tr>
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#### HCPCS Codes

<table>
<thead>
<tr>
<th>HCPCS codes:</th>
<th>Code Description</th>
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</thead>
<tbody>
<tr>
<td>C2616</td>
<td>Brachytherapy source, nonstranded, yttrium-90, per source</td>
</tr>
<tr>
<td>S2095</td>
<td>Transcatheter occlusion or embolization for tumor destruction, percutaneous, any method, using yttrium-90 microspheres</td>
</tr>
</tbody>
</table>

#### ICD-9 Diagnosis Codes

<table>
<thead>
<tr>
<th>ICD-9-CM diagnosis codes:</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>155.0</td>
<td>Malignant neoplasm of liver, primary</td>
</tr>
<tr>
<td>197.7</td>
<td>Malignant neoplasm of liver, secondary</td>
</tr>
<tr>
<td>209.72</td>
<td>Secondary neuroendocrine tumor of liver</td>
</tr>
</tbody>
</table>

#### ICD-10 Diagnosis Codes

<table>
<thead>
<tr>
<th>ICD-10-CM Diagnosis codes:</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C22.0</td>
<td>Liver cell carcinoma</td>
</tr>
<tr>
<td>C22.2</td>
<td>Hepatoblastoma</td>
</tr>
<tr>
<td>C22.3</td>
<td>Angiosarcoma of liver</td>
</tr>
<tr>
<td>C22.4</td>
<td>Other sarcomas of liver</td>
</tr>
<tr>
<td>C22.7</td>
<td>Other specified carcinomas of liver</td>
</tr>
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</table>
Description
Hepatic tumors can arise either as primary liver cancer or by metastasis to the liver from other organs. Local therapy by surgical resection with tumor-free margins or liver transplantation is the only potentially curative treatments.

Various nonsurgical ablative techniques have been investigated that seek to cure or palliate unresectable hepatic tumors by improving locoregional control. These techniques rely on extreme temperature changes (cryosurgery; radiofrequency ablation), particle and wave physics (microwave or laser ablation), or arterial embolization therapy including chemoembolization, bland embolization, or radioembolization (chemoembolization) and gamma radiation (stereotactic radiosurgery).

Radioembolization, referred to as selective internal radiation therapy, is the intra-arterial delivery of small beads (microspheres) impregnated with yttrium-90 via the hepatic artery.

Patients with unresectable primary hepatocellular carcinoma (HCC) have shown a survival benefit using transarterial chemoembolization (TACE) therapy versus supportive care in patients with unresectable HCC.

Therapy for patients with unresectable metastatic neuroendocrine tumors include medical (somatostatin analogs like octreotide), systemic chemotherapy, ablation (radiofrequency or cryotherapy), transcatheter arterial embolization, TACE, or radiation.

Examples of yttrium-90 microspheres for radioembolization of primary and metastatic tumors of the liver include the TheraSphere® from MDS Nordion, Inc. and the SIR-Spheres® from Sirtex Medical Limited. All yttrium-90 microspheres for radioembolization of primary and metastatic tumors of the liver regardless of the commercial name, the manufacturer, or FDA approval status are investigational except as noted in the policy statement.

Summary
Radioembolization (RE), referred to as selective internal radiation therapy (SIRT) in older literature, is the intra-arterial delivery of small beads (microspheres) impregnated with yttrium-90 via the hepatic artery. The microspheres, which become permanently embedded, are delivered to tumor preferentially to normal liver, as the hepatic circulation is uniquely organized, whereby tumors greater than 0.5 cm rely on the hepatic artery for blood supply while normal liver is primarily perfused via the portal vein.

- Hepatocellular carcinoma (HCC): Studies have demonstrated that RE is comparable with transarterial chemoembolization (TACE) (which is considered to be therapy of choice) for patients with unresectable HCC in terms of tumor response and overall survival (OS). Disadvantages of TACE include the necessity of multiple treatment sessions and hospitalization, its contraindication in patients with portal vein thrombosis, and its poorer tolerance by patients.
- Intrahepatic cholangiocarcinoma (ICC): To date, studies on use of RE in patients with ICC consist of small case series. No studies have been published comparing RE with other treatments such as chemotherapy or chemoradiation. Available studies varied with respect to patient characteristics, particularly presence of extrahepatic disease, previous therapy, and performance status.
- Metastatic colorectal cancer: A major cause of morbidity and mortality in patients with colorectal disease metastatic to the liver is liver failure, as this disease tends to progress to diffuse, liver-dominant involvement. Therefore, the use of RE to decrease tumor bulk and/or halt the time to tumor progression and liver failure, may lead to prolonged progression-free and OS in patients with no other treatment options (ie, those with chemotherapy refractory liver-dominant disease). Other uses include palliation of symptoms from tumor bulk. Two phase 3 trials are currently underway that compare first-line chemotherapy with and without RE in patients with metastatic colorectal cancer.
- Metastatic neuroendocrine tumors: Studies have included heterogeneous patient populations, and interpretation of survival data using radioembolization is difficult. Few studies report relief of symptoms from carcinoid syndrome in a proportion of patients. Surgical debulking of liver metastases has shown palliation of hormonal symptoms; debulking by RE may lead to symptom relief in some patients.
- Miscellaneous: A few studies on the use of RE in metastatic breast cancer and melanoma to the liver have shown promising initial results; however, the data are limited and the studies have been small and composed of heterogeneous patients. The use of RE in other tumors metastatic to the liver is too limited to draw meaningful conclusions; this use is considered investigational.
- Limited data are available to assess the utility of RE (radiation lobectomy) as a technique to bridge to hepatic resection.

**Policy History**

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>5/2014</td>
<td>Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.</td>
</tr>
<tr>
<td>5/2014</td>
<td>BCBSA National medical policy review. Clarified coding information</td>
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<tr>
<td>1/2014</td>
<td>Coding information clarified</td>
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**Information Pertaining to All Blue Cross Blue Shield Medical Policies**

Click on any of the following terms to access the relevant information:
- Medical Policy Terms of Use
- Managed Care Guidelines
- Indemnity/PPO Guidelines
- Clinical Exception Process
- Medical Technology Assessment Guidelines

**References**


